

## CLAIMS:

1. A low-pressure mercury vapor discharge lamp comprising a light-transmitting discharge vessel,

the discharge vessel enclosing, in a gastight manner, a discharge space provided with an inert gas mixture and with mercury,

5 a first portion of the discharge vessel being provided with a first electrode arranged in the discharge space and with a luminescent layer,

which first portion, in operation, radiates light in a first range of the electromagnetic spectrum from 100 to 1000 nm,

10 a second portion of the discharge vessel being provided with a second electrode arranged in the discharge space,

which second portion, in operation, radiates light in a second range of the electromagnetic spectrum from 100 to 1000 nm, said second range being different from the first range, characterized in that:

15 the low-pressure mercury vapor discharge lamp comprises current supply conductors for receiving a direct current, and

the discharge space contains only two electrodes.

2. A low-pressure mercury vapor discharge lamp as claimed in claim 1, characterized in that an amalgam (4) is provided in the discharge vessel (1).

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3. A low-pressure mercury vapor discharge lamp as claimed in claim 2, characterized in that the amalgam (4) is provided in the region between the first and the second portion (11, 21) of the discharge vessel (1).

25 4. A low-pressure mercury vapor discharge lamp as claimed in claim 2, characterized in that the amalgam is provided in the region of the electrode (12) of the portion (11) of the discharge vessel (1) with the lowest color temperature.

5. A low-pressure mercury vapor discharge lamp as claimed in claim 2 or 4, characterized in that the amalgam is provided in the region of the first electrode (12), and a further amalgam (24) is provided in the region of the second electrode (22).

6. A low-pressure mercury vapor discharge lamp as claimed in claim 1, 2, 3 or 4, characterized in that a cold spot is provided in the discharge vessel (1).

7. A low-pressure mercury vapor discharge lamp as claimed in claim 6, characterized in that the cold spot is provided in the region between the first and the second portion (11, 21) of the discharge vessel (1).

8. A low-pressure mercury vapor discharge lamp as claimed in claim 6 in combination with claim 2, 3 or 4 or as claimed in claim 7 in combination with claim 2, 3 or 4, characterized in that the amalgam is provided in the region of the cold spot.

9. A low-pressure mercury vapor discharge lamp as claimed in claim 1, 2, 3 or 4, characterized in that a wall of the second portion (21) of the discharge vessel (1) is made from a glass which is transmissive to UV.

10. A low-pressure mercury vapor discharge lamp as claimed in claim 1, 2, 3 or 4, characterized in that, in operation, the luminescent layer (16) yields a spectral characteristic stimulating melatonin built-up in a human subject or yields a spectral characteristic suppressing the melatonin built-up or stimulating melatonin degradation in the human subject.

11. A low-pressure mercury vapor discharge lamp as claimed in claim 1, 2, 3 or 4, characterized in that the second portion (21) of the discharge vessel (1) is provided with a further luminescent layer (26).

12. A low-pressure mercury vapor discharge lamp as claimed in claim 11, characterized in that, in operation, the further luminescent layer (26) yields a spectral characteristic suppressing the melatonin built-up in a human subject or stimulating melatonin degradation or yields a spectral characteristic stimulating melatonin built-up in the human subject.

13. A low-pressure mercury vapor discharge lamp as claimed in claim 10 and 12, characterized in that, in operation, the luminescent layer (16) yields a spectral characteristic stimulating melatonin built-up in the human subject and that the further luminescent layer (26) yields a spectral characteristic suppressing the melatonin built-up or stimulating melatonin degradation in the human subject.
14. A low-pressure mercury vapor discharge lamp as claimed in claim 10, 12 or 13, characterized in that the spectral characteristic is specified by an output fraction of melatonin suppressive radiation  $R_{sr}$  and light output  $L_o$ , the melatonin suppressive radiation being  $R_{sr} \geq 0.45$  Melatonin Watt/Watt and the light output being  $L_o \leq 60$  lumen/Watt.
15. A low-pressure mercury vapor discharge lamp as claimed in claim 10, 12 or 13, characterized in that the spectral characteristic is specified by an output fraction of melatonin suppressive radiation  $R_{sr}$  and light output  $L_o$ , the melatonin suppressive radiation being  $R_{sr} \geq 0.6$  Melatonin Watt/Watt and the light output being  $L_o \geq 100$  lumen/Watt, the discharge lamp having a color temperature of  $\geq 6500$  K.
16. A low-pressure mercury vapor discharge lamp as claimed in claim 10, 12 or 13, characterized in that the spectral characteristic is specified by an output fraction of melatonin suppressive radiation  $R_{sr}$  and light output  $L_o$ , the melatonin suppressive radiation being  $R_{sr} \leq 0.2$  Melatonin Watt/Watt and the light output being  $L_o \geq 100$  lumen/Watt.
17. A low-pressure mercury vapor discharge lamp as claimed in claim 11, characterized in that the luminescent layer (16) of the first portion (11) comprises a luminescent material emitting UV-A radiation, and in that the further luminescent layer (26) of the second portion (21) comprises a luminescent material emitting UV-B radiation or emitting UV-A and UV-B radiation.
18. A low-pressure mercury vapor discharge lamp as claimed in claim 1, 2, 3 or 4, characterized in that the low-pressure mercury vapor discharge lamp is adapted to receive an alternating current.

19. A low-pressure mercury vapor discharge lamp as claimed in claim 1, 2, 3 or 4 characterized in that

the discharge lamp comprises an at least partly substantially cylindrical discharge vessel (1) with a length  $L_{dv}$  and with an internal diameter  $D_{in}$ , and

5 the ratio of the weight of mercury  $m_{Hg}$  in the discharge vessel (1) and the product of the internal diameter  $D_{in}$  and the length of the discharge vessel  $L_{dv}$  is given by the relation:

$$\frac{m_{Hg}}{D_{in} \times L_{dv}} = C,$$

wherein  $C \leq 0.01 \mu g/mm^2$ .

10 20. A low-pressure mercury vapor discharge lamp as claimed in claim 19, characterized in that  $0.0005 \leq C \leq 0.005 \mu g/mm^2$ .

15 21. A low-pressure mercury vapor discharge lamp as claimed in claim 1, 2, 3 or 4 characterized in that

the discharge lamp comprises an at least partly substantially cylindrical discharge vessel (1) with a length  $L_{dv}$  and with an internal diameter  $D_{in}$ , and

the product of the mercury pressure  $p_{Hg}$  and the internal diameter  $D_{in}$  of the discharge vessel (1) is in the range  $0.13 \leq p_{Hg} \times D_{in} \leq 8 \text{ Pa.cm}$ .

20 22. A low-pressure mercury vapor discharge lamp as claimed in claim 21, characterized in that the product of the mercury pressure  $p_{Hg}$  and the internal diameter  $D_{in}$  of the discharge vessel (1) is in the range  $0.13 \leq p_{Hg} \times D_{in} \leq 4 \text{ Pa.cm}$ .

25 23. A low-pressure mercury vapor discharge lamp as claimed in claim 1, 2, 3 or 4, characterized in that the discharge vessel (1) contains less than 0.2 mg mercury.

24. A compact fluorescent lamp comprising a low-pressure mercury-vapor discharge lamp as claimed in claim 1, 2, 3 or 4, characterized in that a lamp housing (70) is  
30 attached to the discharge vessel (1) of the low-pressure mercury-vapor discharge lamp, which lamp housing is provided with a lamp cap.

25. A compact fluorescent lamp as claimed in claim 24, characterized in that the discharge vessel (1) of the low-pressure mercury-vapor discharge lamp is surrounded by a diffusely scattering light-transmitting envelope which is attached to the lamp housing (70).